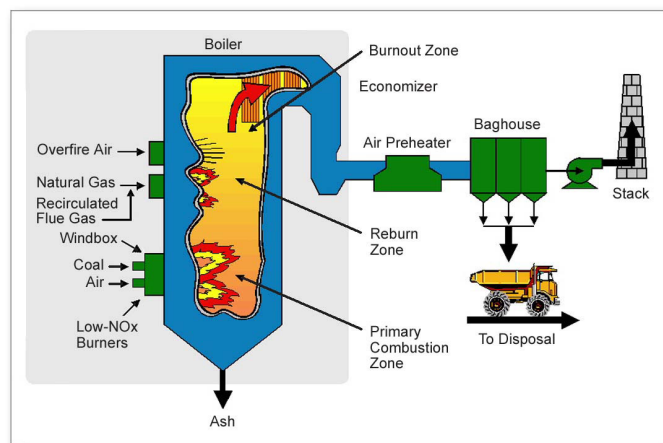
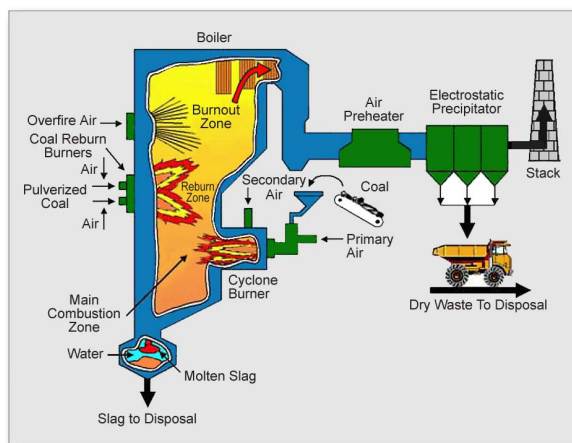


# 2004 Conference on Reburning for NO<sub>x</sub> Control

## “Reburning on Trial”



National Energy Technology Laboratory  
Morgantown, West Virginia

May 18, 2004

Sponsored by:

U.S. Department of Energy  
Office of Fossil Energy  
National Energy Technology Laboratory



**Tuesday, May 18, 2004**

7:15 a.m. **Registration/Continental Breakfast**

7:50 a.m. **Welcoming Remarks and Introduction of Keynote Speaker**

Thomas A. Sarkus, Conference Chair

Director, Coal Power Products Division

*U.S. Department of Energy, National Energy Technology Laboratory*

## **Reburning Overview**

Moderator: Todd Sommer, *Promecon USA*

8:00 a.m. **Keynote Address**

**Reburning: An Historical Perspective**

Jost O.L. Wendt, *Professor and Head, Department of Chemical and Environmental Engineering, University of Arizona*

8:25 a.m. **An EPA Perspective on Reburning for NO<sub>x</sub> Control**

Robert E. Hall, *U.S. Environmental Protection Agency*

8:50 a.m. **Future Trends in the Natural Gas Market**

Kenneth Kern and Gregson Vaux, *SAIC*

9:15 a.m. **Break**

## **Commercial Reburning Experience**

9:45 a.m. **B&W's Experience on the Application of Reburn Technology on Cyclone Boilers**

Hamid Farzan, Angelos H. Kokkinos, Gerald J. Maringo, and Anthony S. Yagiela  
*The Babcock & Wilcox Company*

10:10 a.m. **Experience with Reburn for NO<sub>x</sub> Emissions Control**

Donald Englehardt, Roy Payne, David Moyeda, and Blair Folsom, *GE Energy*

10:35 a.m. **Reburn Technology Application Guidelines**

David Moyeda, Donald Hartsock, and Roy Payne, *GE Energy*

11:00 a.m. **Review of Reburning Projects in the Department of Energy's Clean Coal Technology Demonstration Program**

Alfred N. Mann and Thomas C. Ruppel, *Parsons Corporation*

Thomas A. Sarkus, *U.S. Department of Energy, National Energy Technology Laboratory*

11:25 a.m. **The Chemistry of Reburning as Applied to Commercial Installations**

John H. Pohl, *Virginia Polytechnic Institute*

Donald Stookey, *Compact Membrane Systems*

11:50 a.m. **Tests on Combined Stage Combustion, SNCR and Reburning for NO<sub>x</sub> Control on Industrial and Utility Boilers**  
Bert Zauderer, *Coal Tech*

12:15 p.m. **Lunch** (on your own)

1:00 p.m. **Poster Session**

## **Biomass Reburning**

Moderator: William Ellison, *Ellison Consultants*

1:30 p.m. **Fuel-Lean Reburn with In-Situ Gasification of Coal, Biomass, and Biomass-Coal Mixtures and with Biomass-Derived Gas**  
Bernard P. Breen and Robert A. Schrecengost, *Breen Energy Solutions*  
Robert C. Brown, Jeffrey Sweterlisch, and Nathan Emsick, *Iowa State University*

1:55 p.m. **Evaluation of Biomass Syngas for Co-Firing and Reburning in a Coal Fired Boiler**  
Bradley R. Adams and Hong Shig Shim, *Reaction Engineering International*  
Keng-Tung Wu, Hom-Ti Lee, and Hou-Peng Wan, *Industrial Technology Research Institute, Taiwan*  
Stoney L. Chen, *Pacific Rim Technologies, Taiwan*

## **Other Applications of Reburning**

2:20 p.m. **Oxygen Enhanced Reburning**  
Sho Kobayashi, *Praxair*

2:45 p.m. **Reduction of Mercury Emissions Using Reburning**  
Vitali Lissianski, Randy Seeker, and Pete Maly, *GE Energy*

## **Conference Wrap-up**

3:10 p.m. **Panel Discussion**

Moderator: Jost O.L. Wendt, *University of Arizona*

**Reburning on Trial: To What Extent is it a Viable NO<sub>x</sub> Control Technology in Today's Environment?**

David Moyeda, *GE Energy*

Angelos Kokkinos, *Babcock & Wilcox*

Mark Scaccia, *Allegheny Energy Supply*

Robert E. Hall, *EPA*

4:10 p.m.    **Closing Remarks**  
Thomas A. Sarkus, Conference Chair  
Director, Coal Power Products Division  
*U.S. Department of Energy, National Energy Technology Laboratory*

4:15 p.m.    **Adjourn**

## **Posters**

### **Design of Reburning Fuel**

Wei-Yin Chen and Benson B. Gathitu, *Department of Chemical Engineering, University of Mississippi*

### **Controlling NO<sub>x</sub> Emissions in Combustion of Natural Gas in Steam Generators by Controlling Oxygen in the Windbox**

Fabio Russoniello, *ESYS*, and Douglas Simmers, *Emerson Process Management*

### **NO<sub>x</sub> Control Program at the National Energy Technology Laboratory**

Bruce W. Lani, *U.S. Department of Energy, National Energy Technology Laboratory*

### **Synergistic Hybrid DeNO<sub>x</sub> Using Coal Reburn and Enhanced Dry Scrubbing**

William Ellison, *Ellison Consultants*

### **New IC Cycle for Low NO<sub>x</sub> at High Efficiency**

John L. Loth, *West Virginia University*